

High Speed 2 - 1MC06 - Stage One C2 - MWCC – North Portal of Chiltern Tunnels to Brackley

Chetwode Embankment Report of Cross Sections

1MC06-CEK-CV-REP-CS06_CL10-000019

Rev	Date	Author	Checked by	Approved by	Revision Details	EKFB Reviewer
C01	26/08/2022	B.DARRIEUTORT	V.Beraldi	B.Macguire	Revised in line with Comments	Laurent Vinçont
P03	28/06/2022	B.DARRIEUTORT	T.Eymard	B.Macguire	Internal Review	
P02	17/02/2022	D.Riom	M.Castan	B.Macguire	First issue	Laurent Vinçont
P01	10/02/2022	D.Riom	V.Beraldi		Internal review	

Stakeholder review required (SRR)	Purpose of SRR
☐ County / District / London Borough Council	☐ Acceptance
☐ LOV	☐ Approval
☐ LUL	☐ No Objection
☐ NRL	☐ Consent
☐ TFL	
☐ Utilities Company	
☐ Other (please specify)	

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APPENDICES

Appendix A

Chetwode Embankment Earthworks Cross-sections

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1 Introduction

This report provides a summary of the cross-sections for this embankment, as detailed in the Table below.

Description	Ref.
Legends and Notes	Fig. 01
Earthworks Sections Ch 84+467	Fig. 02
Earthworks Sections Ch 84+480	Fig. 03
Earthworks Sections Ch 84+488.800	Fig. 04
Earthworks Sections Ch 84+490	Fig. 05
Earthworks Sections Ch 84+500	Fig. 06
Earthworks Sections Ch 84+520	Fig. 07
Earthworks Sections Ch 84+537	Fig. 08
Earthworks Sections Ch 84+540	Fig. 09
Earthworks Sections Ch 84+550	Fig. 10
Earthworks Sections Ch 84+560	Fig. 11
Earthworks Sections Ch 84+571.213	Fig. 12
Earthworks Sections Ch 84+580	Fig. 13
Earthworks Sections Ch 84+600 to 84+603	Fig. 14
Earthworks Sections Ch 84+610 to 84+620	Fig. 15
Earthworks Sections Ch 84+640 to 84+645	Fig. 16
Earthworks Sections Ch 84+660 to 84+680	Fig. 17
Earthworks Sections Ch 84+685 to 84+700	Fig. 18
Earthworks Sections Ch 84+710 to 84+713	Fig. 19
Earthworks Sections Ch 84+720 to 84+740	Fig. 20
Earthworks Sections Ch 84+760 to 84+780	Fig. 21
Earthworks Sections Ch 84+800 to 84+820	Fig. 22
Earthworks Sections Ch 84+840 to 84+860	Fig. 23
Earthworks Sections Ch 84+880 to 84+900	Fig. 24
Earthworks Sections Ch 84+920 to 84+925	Fig. 25

Table 1 - List of Chetwode Embankment Earthworks Cross-sections

The above figures are included in Appendix A.

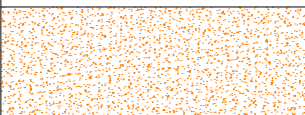
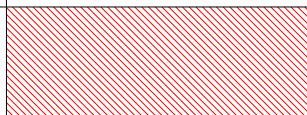
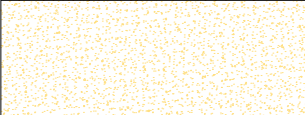
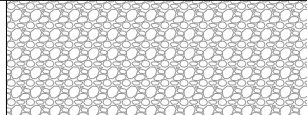
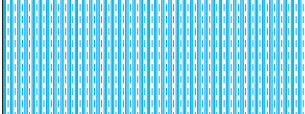
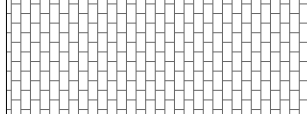
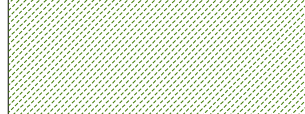
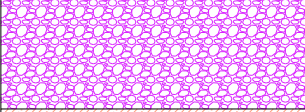
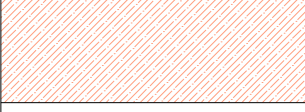
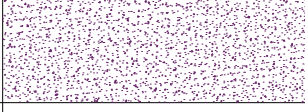
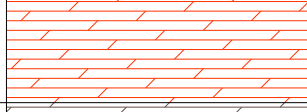
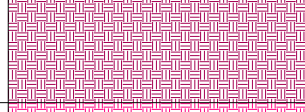
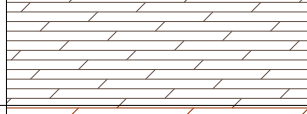
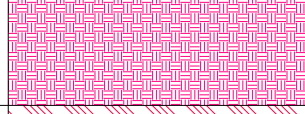
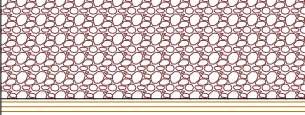
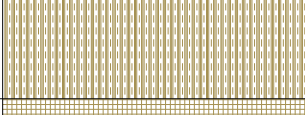
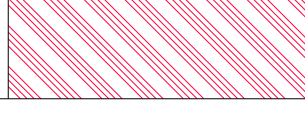
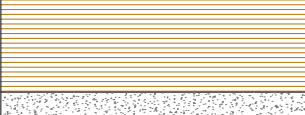
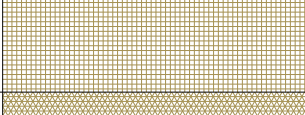
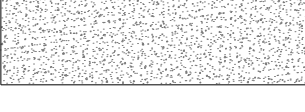
APPENDIX A

Chetwode Embankment Earthworks Cross-sections

Number of pages: 25

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LEGENDS

Plateform		Embankment		Cutting		Top soil / Sub soil	
	Protection Layer		Upper Embankment Fill		Cutting Core		Landscape Subsoil
	Prepared Subgrade		Lower Embankment Fill		Blanket Layer/Rock Buttress		Landscape Topsoil
	Walkway		Flood Protection		Wall		Topsoil Embankment
	Granular Drainage Grip		Starter Layer		Excavate Settlement		Topsoil Cutting
	Cutting Fill		Class 6 Fill		Excavate Heave		Stripping Subsoil Landscape
Track Drainage		Landscape			Excavate QS0		Stripping Topsoil Landscape
	Granular Fill Material		Zone 1 Landscape Fill Class 2		Excavate Rayleigh Waves		Stripping Topsoil Engineering
	Class 8 Fill		Zone 2 Landscape Fill Class 2				
	Concrete Surround		Zone 3 Landscape Fill Class 4				

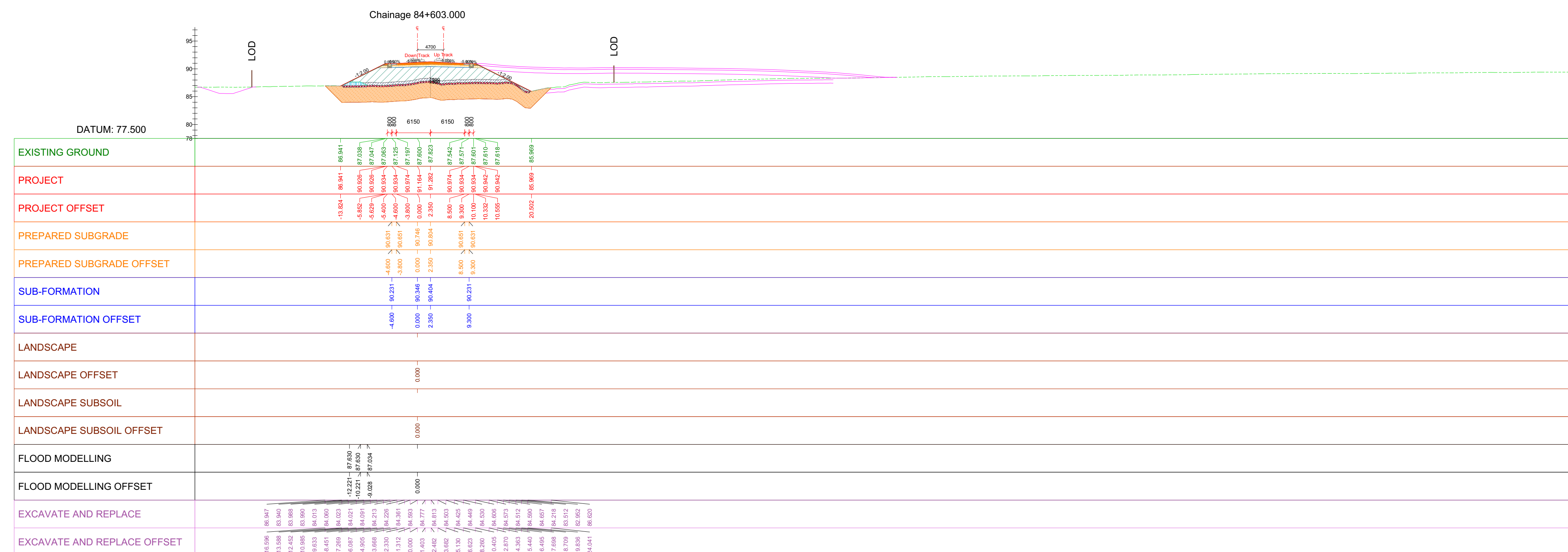
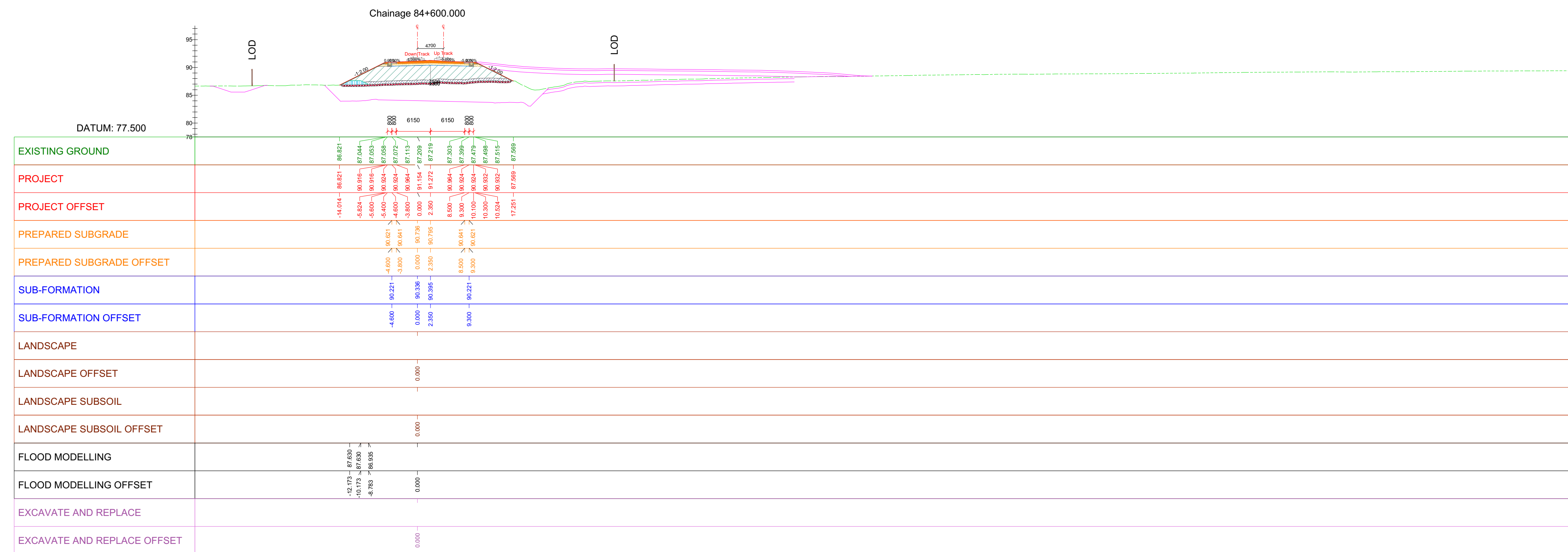
GENERAL NOTES :

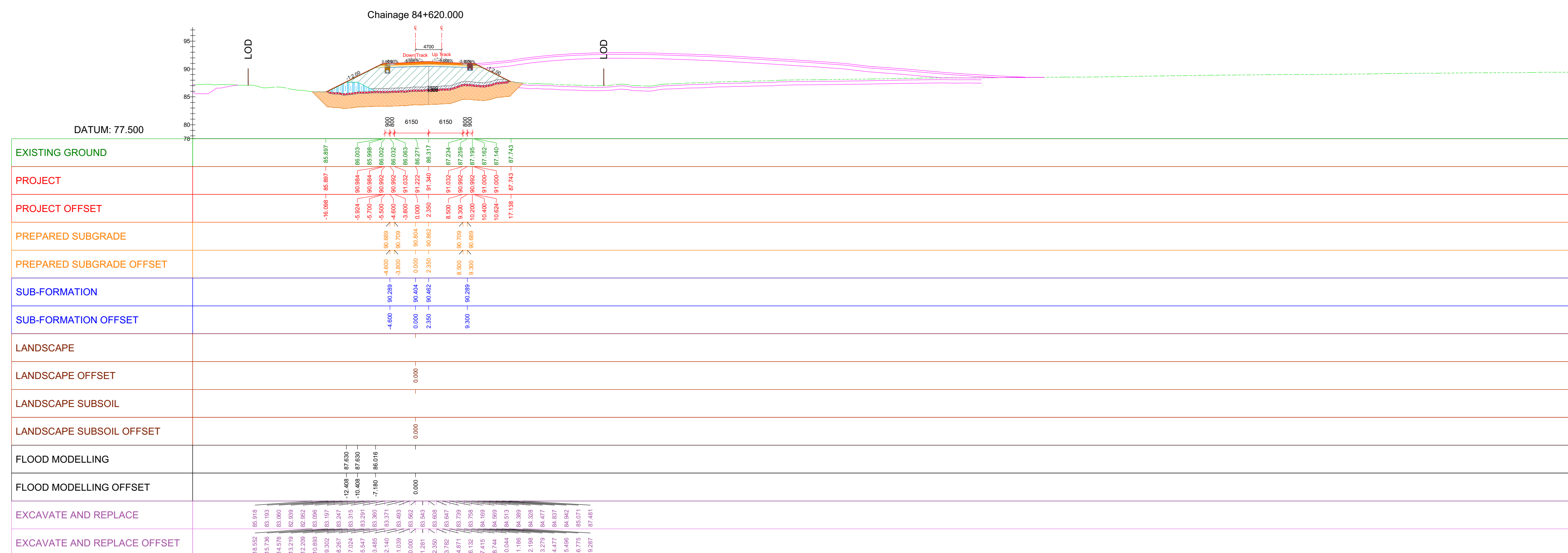
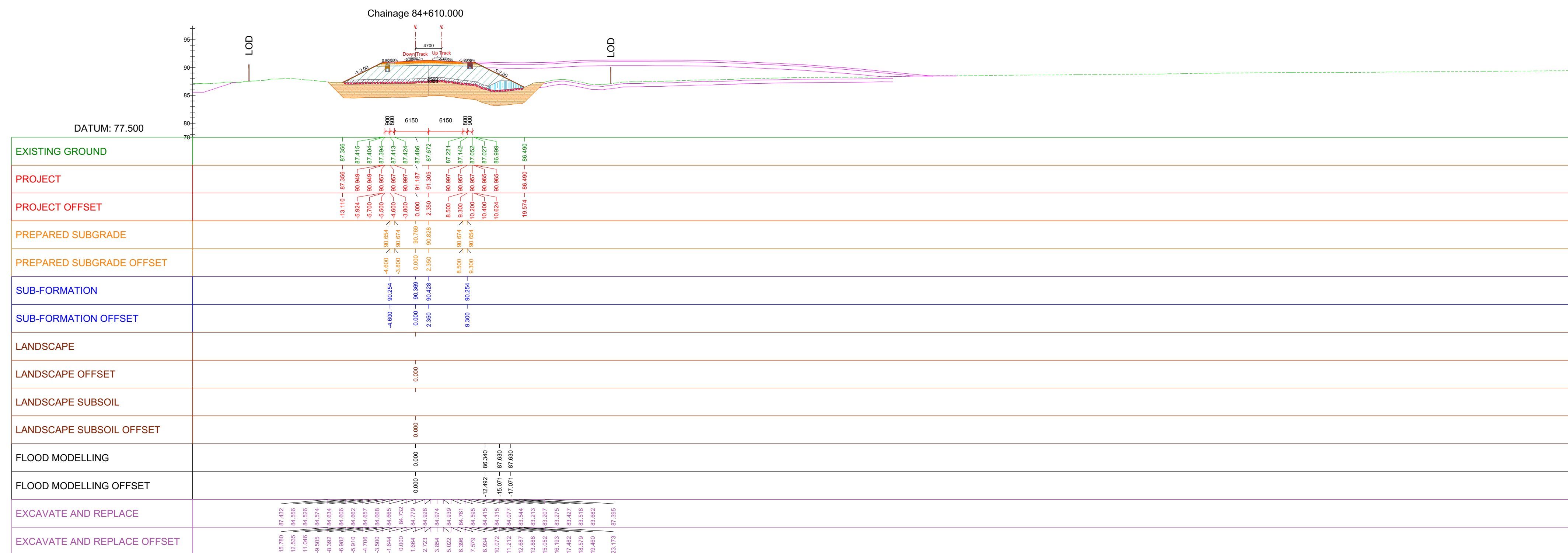
- Dimensions are based on 475mm rail and Slab track, and 300mm HBL directly below rail.
- As per clause 3.3.5 of HS2-HS2-CV-STD-000-000001 P04 OCS Mast foundations will be a maximum of 900mm wide.
- As per clause 6.4.6 of HS2-HS2-RT-STD-000-000004 P04 the maximum width of Slab Track is 2.55m.
- As per clause 6.5.1 of HS2-HS2-RT-STD-000-000004 P04 nominal width of Hydraulically Bound Layer is 3.25m.
- In the grids, all dimensions shown are in metres and all levels are in metres AOD unless stated otherwise.
- For Standard Earthwork Details see document 1MC06-CEK-GT-DGA-C002-000051.
- For drainage details see relevant drawings below: Drawings 1MC06-CEK-DR-DDE-C002-000119 to 163.
- For Typical RouteWide cross sections: Drawings 1MC06-CEK-CV-DSE-C002-000026 to 30.
- For Instrumentation and Monitoring: Instrumentation and Monitoring General Arrangement, drawings 1MC06-CEK-CV-DGA-C002-000194.
- Information on residual hazards can be found on the above relevant drawings and DRA and / or CSM hazard log. Refer to the CDM register (1MC06-CEK-AU-REG-C002-000068) for asset specific health, safety and environmental information.
- In order to mitigate longitudinal distortion, a longitudinal transition of 1V/10H will be applied between different depths of temporary excavation. At transition between cutting and embankments, the following standard earthwork details n° 1MC06-CEK-GT-DSE-C002-000094 and n° 1MC06-CEK-GT-DSE-C002-000095 will be applied.
- The visual and physical design of earthworks shall remove the squared shoulders in both the cuttings and embankments by the softening of these transitions through the use of concave and convex curves in the landform: see HS2-HS2-EV-STD-000-000021.

SPECIFIC ASSET NOTES :

- For details of geotechnical mitigations refer to Chetwode Embankment Geotechnical Design Report (GDR) - 1MC06-CEK-GT-REP-CS06_CL10-000032 and Chetwode Embankment Asset Specific Cross Sections -1MC06-CEK-GT-DSE-CS06_CL10-000032.
- Refer to structure drawings for Godington West Viaduct and transitions with the earthworks - 1MC06-CEK-GT-DDE-CS06_CL10-000006, 1MC06-CEK-GT-DDE-CS06_CL10-000012, 1MC06-CEK-GT-DDE-CS06_CL10-000015 and 1MC06-CEK-GT-DGA-CS06_CL10-000015.
- Refer to structure drawings for Godington West Culvert and transitions with the earthworks - 1MC06-CEK-BR-DDE-CS06_CL10-000163, 1MC06-CEK-BR-DGA-CS06_CL10-000683, 1MC06-CEK-BR-DGA-CS06_CL10-000695, 1MC06-CEK-BR-DGA-CS06_CL10-000852, 1MC06-CEK-BR-DGA-CS06_CL10-000465 and 1MC06-CEK-BR-DGA-CS06_CL10-000466.
- This report of cross section doesn't show the following details : position of the geotextile, temporary surcharge, temporary work platform, material distribution at the viaduct abutment and at transition with the culvert.
- Mitigation measures along Chetwode Embankment include:
 - From Ch. 84+467 to Ch. 84+517 (Transition with the viaduct) : E&R (2.5 mbGL - total removal of Alluvium and soft ground) + surcharge anticipation (20 to 30 kPa) + 6 months hold period + flood mitigations associated with starter layer ;
 - From 84+512 to Ch. 84+700 (including transitions with Godington West culvert) : E&R (2.5 to 3.1 mbGL - total removal of Alluvium and soft ground) + 3 months hold period + flood mitigations associated with a starter layer;
 - From Ch. 84+700 to Ch. 84+925: E&R + surcharge anticipation (+1.50 m = 30 kPa) where the embankment height is greater than 1 m + 3 months hold period;
- The thickness of Excavate and Replace shown on the cross-section is indicative. This thickness should be determined during works, after inspection by a specialist. The dig out and replace will insure the total removal of Alluvium and/or made ground and/or soft clay pocket with Cu < 50 kPa.
- The slope of temporary excavations is shown in 1H/1V in this document. This slope is indicative and should be defined by temporary designer to ensure stability, regarding the local ground conditions and the construction programme.
- Landscapes bunds to be constructed full height before temporary surcharge removal.
- For Padbury Brook Diversion 00, see relevant drawings: 1MC06-CEK-DR-DPL-CS06_CL10-000002 and 1MC06-CEK-DR-DSE-CS06_CL10-000003.
- For C2.T.79 REG-08458, see relevant drawings: 1MC06-CEK-DR-DGA-CS06_CL10-000022.
- For C2.T.80 REG-0848, see relevant drawings: 1MC06-CEK-DR-DGA-CS06_CL10-000023.

Level 2 Asset	Package	Review Status
HS2-000001431 - Godington West Culvert	IDR 221	For Coordination
HS2-00002UVZ1 - Padbury Brook Diversion 00	IDR 221	For Coordination
HS2-000001053 - Chetwode Embankment	IDR 221.1	Current
HS2-000020NLR - Flood Compensation Area-084B	IDR 221.1	Current
HS2-00002BVHR - Chetwode Embankment Landscape Earthworks	IDR 221.1	Current
HS2-00002CTAP - C2.T.79 Catchment	IDR 221.1	Current
HS2-00002CTAQ - C2.T.80 Catchment	IDR 221.1	Current
HS2-000020ONLY - Chetwode ATS Access Road and Maintenance Access Road to Pond (P-RAI-0846)	IDR 221.2	For Coordination
HS2-00002CTAR - Chetwode Embankment Boundary/Perimeter Fence Line	IDR 221.5	For Coordination
HS2-00002CTAT - Chetwode Embankment Security Fence Line	IDR 221.5	For Coordination





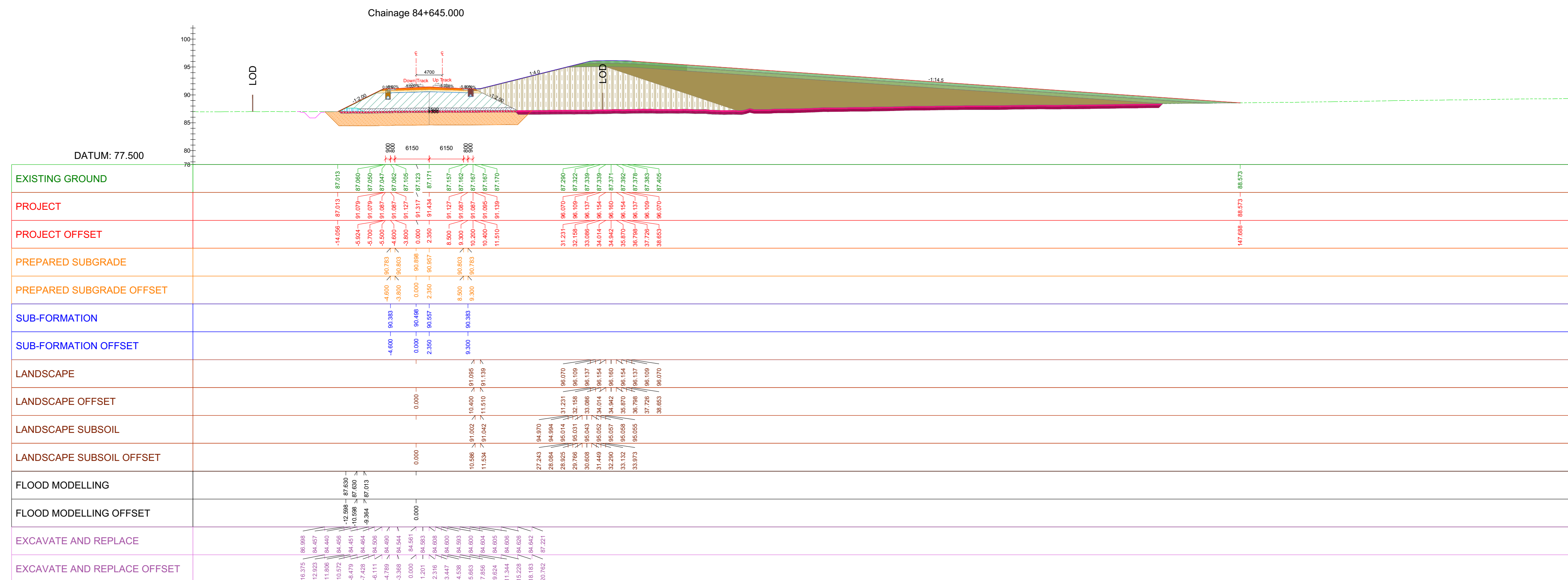


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FIG. 16

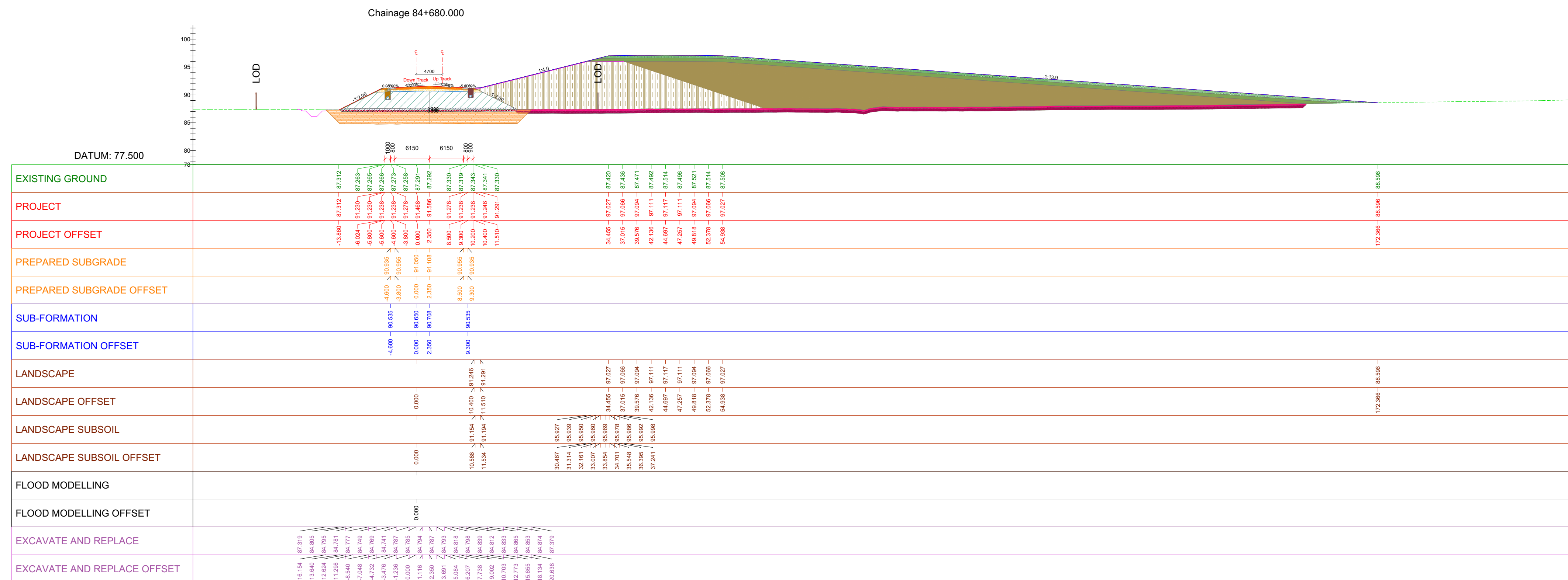
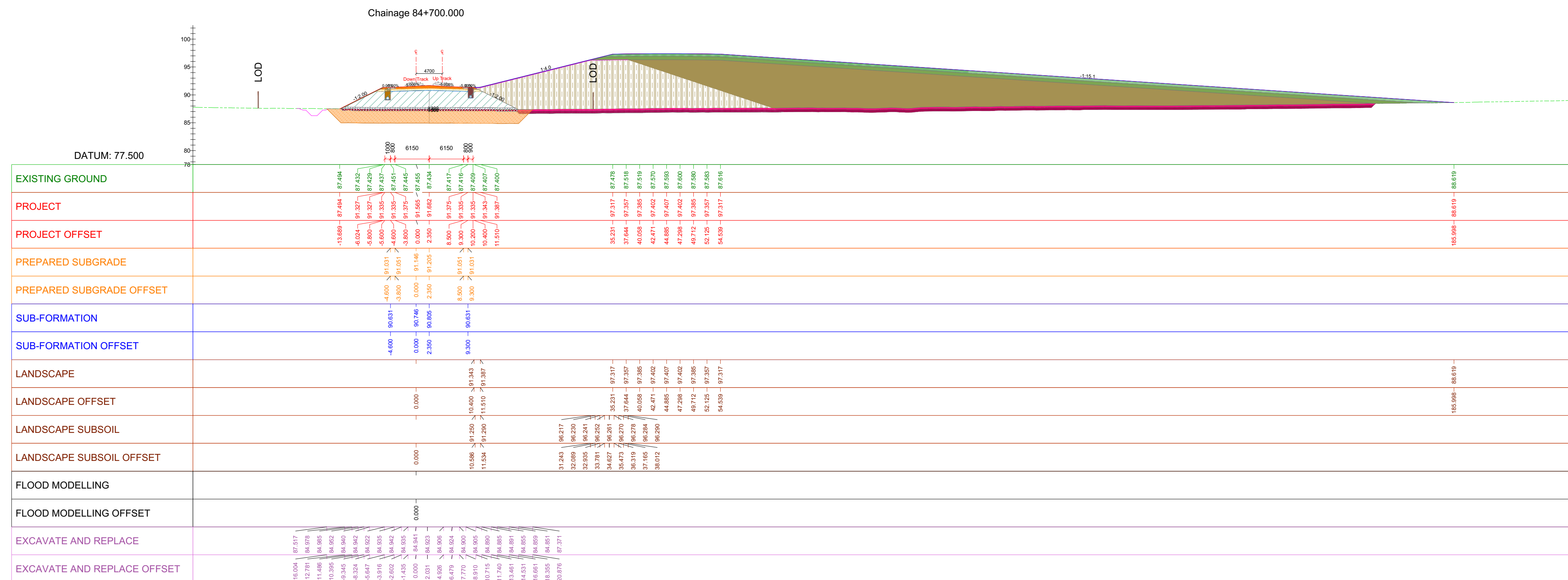
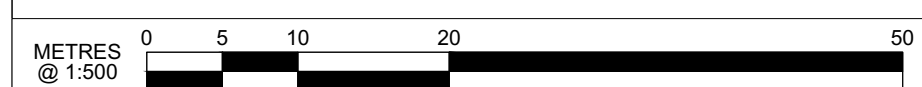
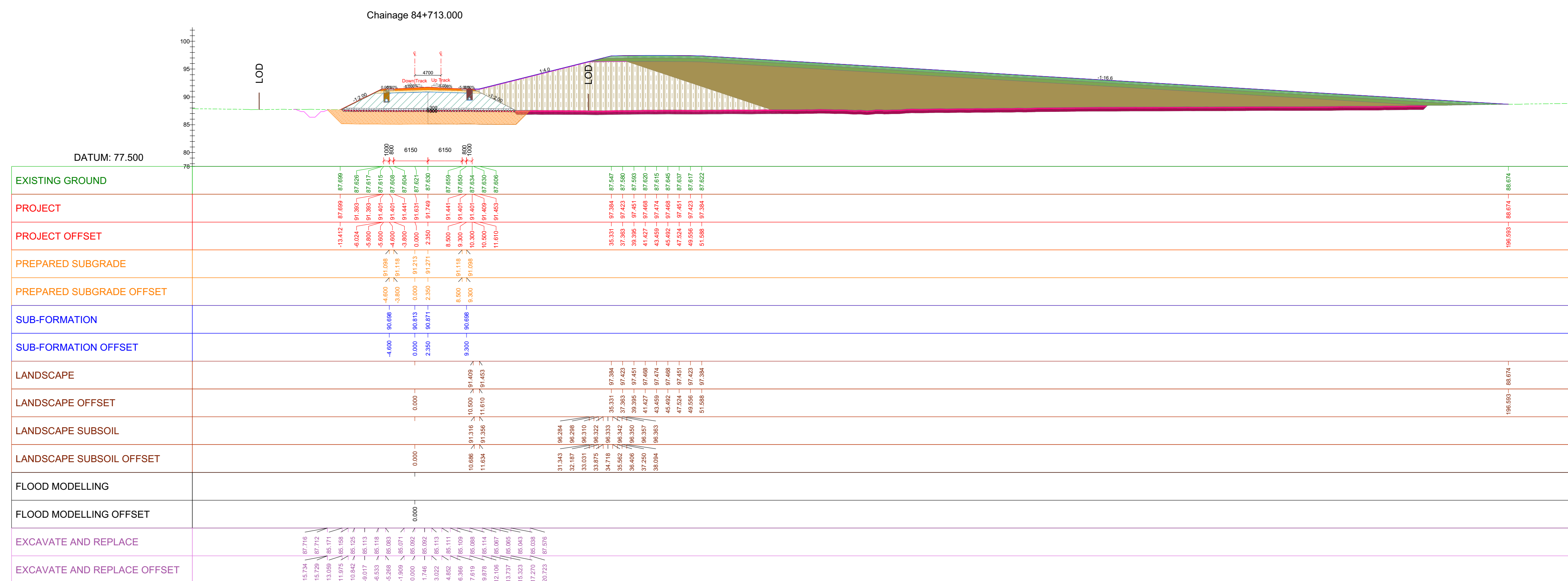
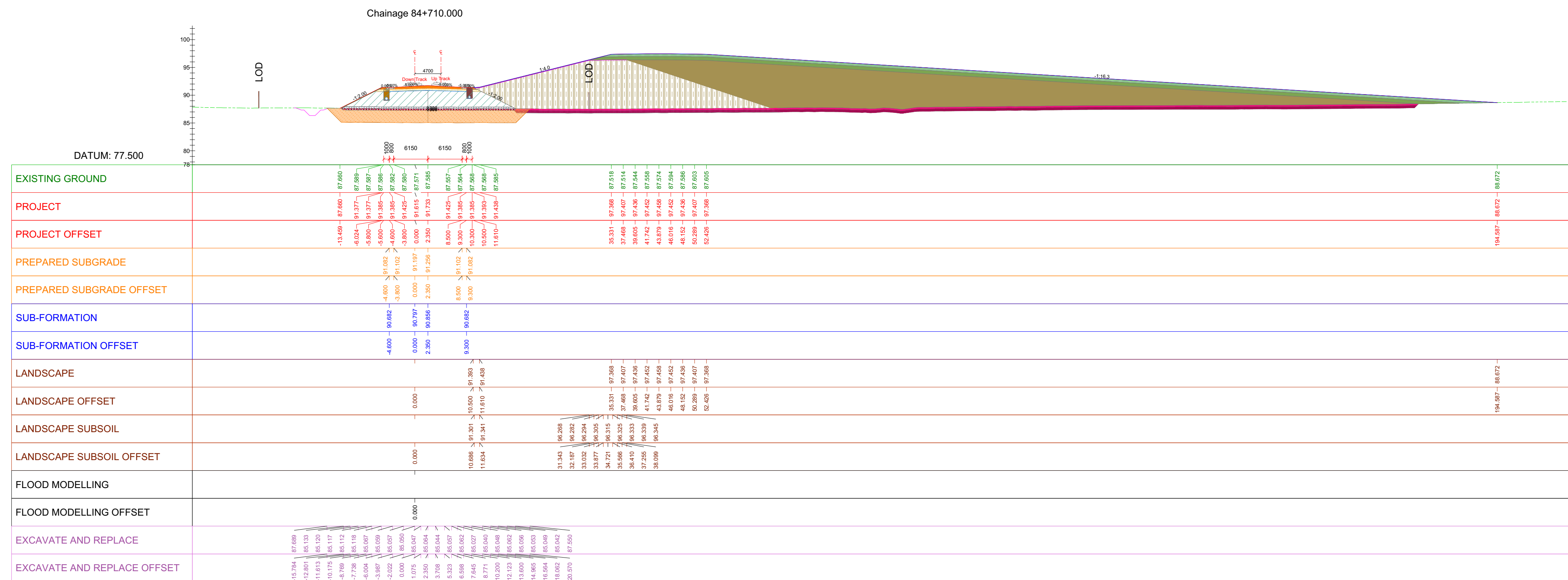


FIG. 17





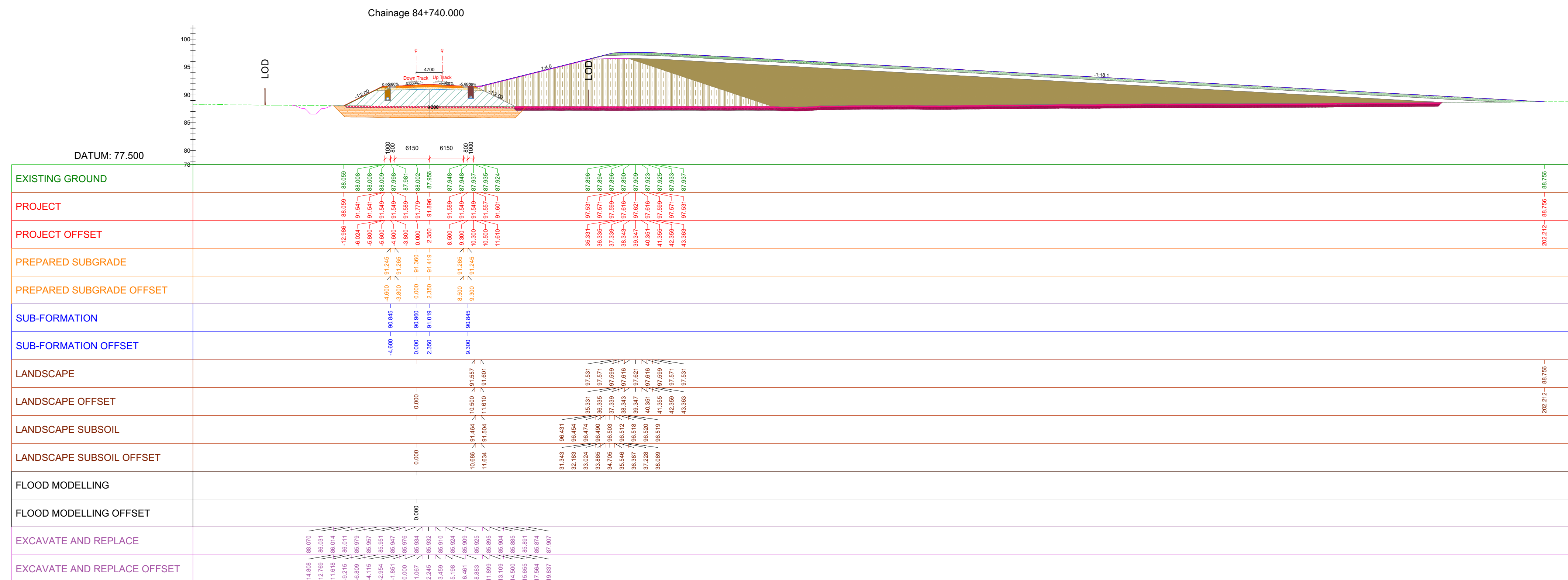
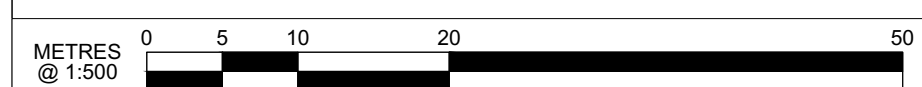
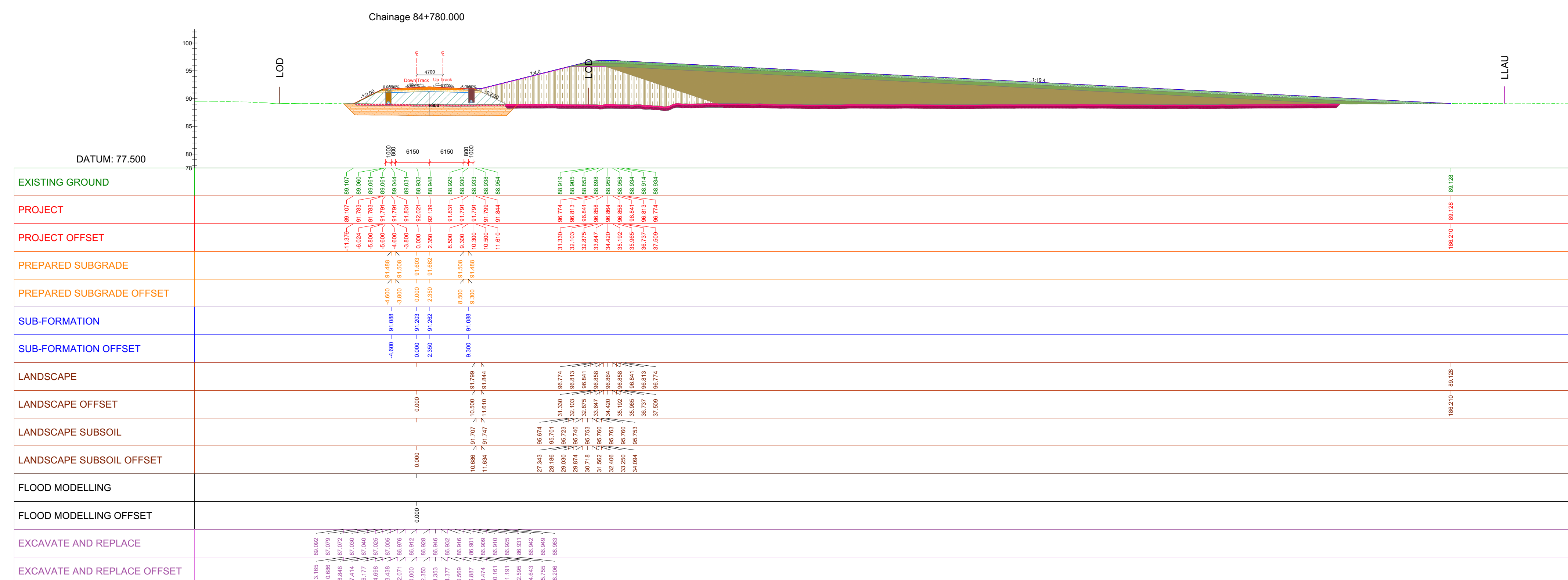
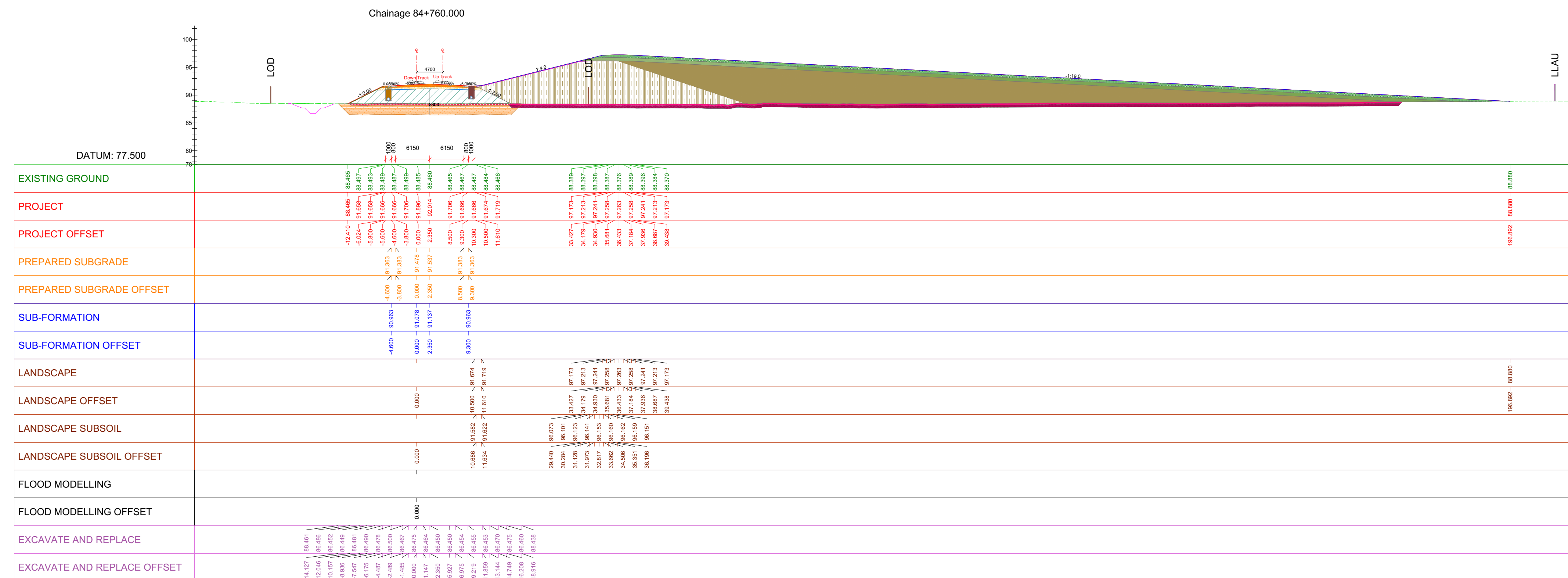
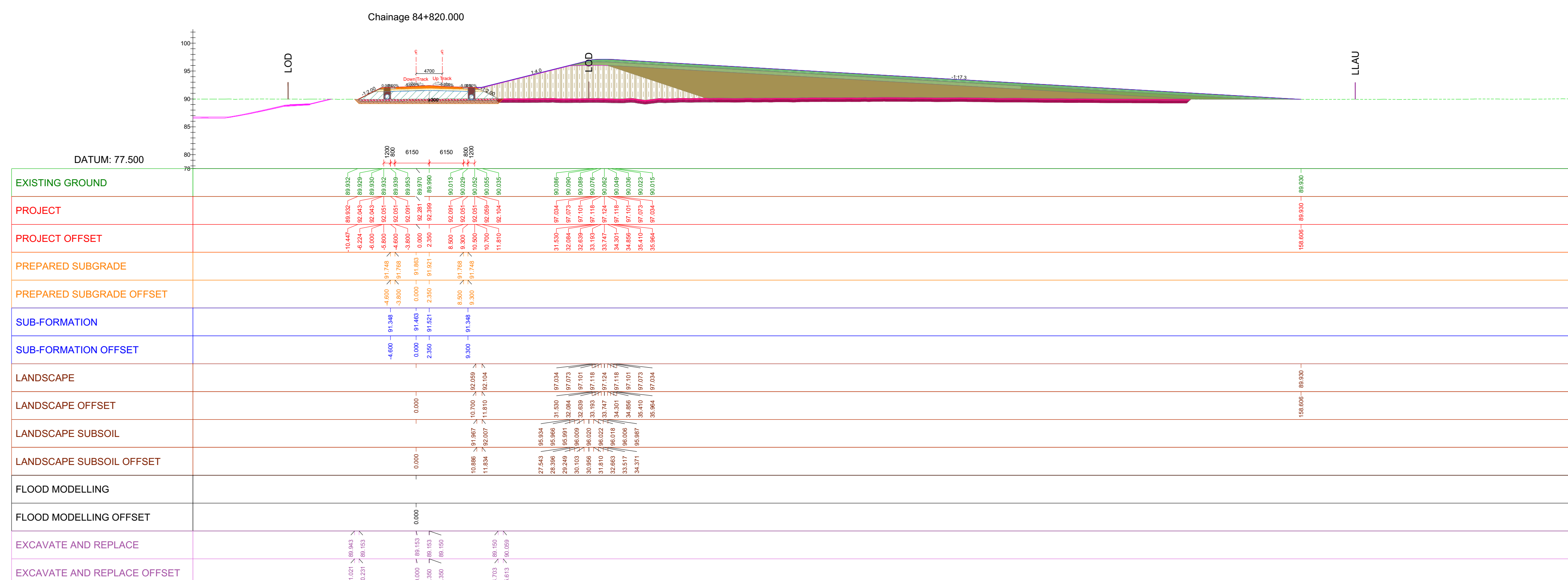
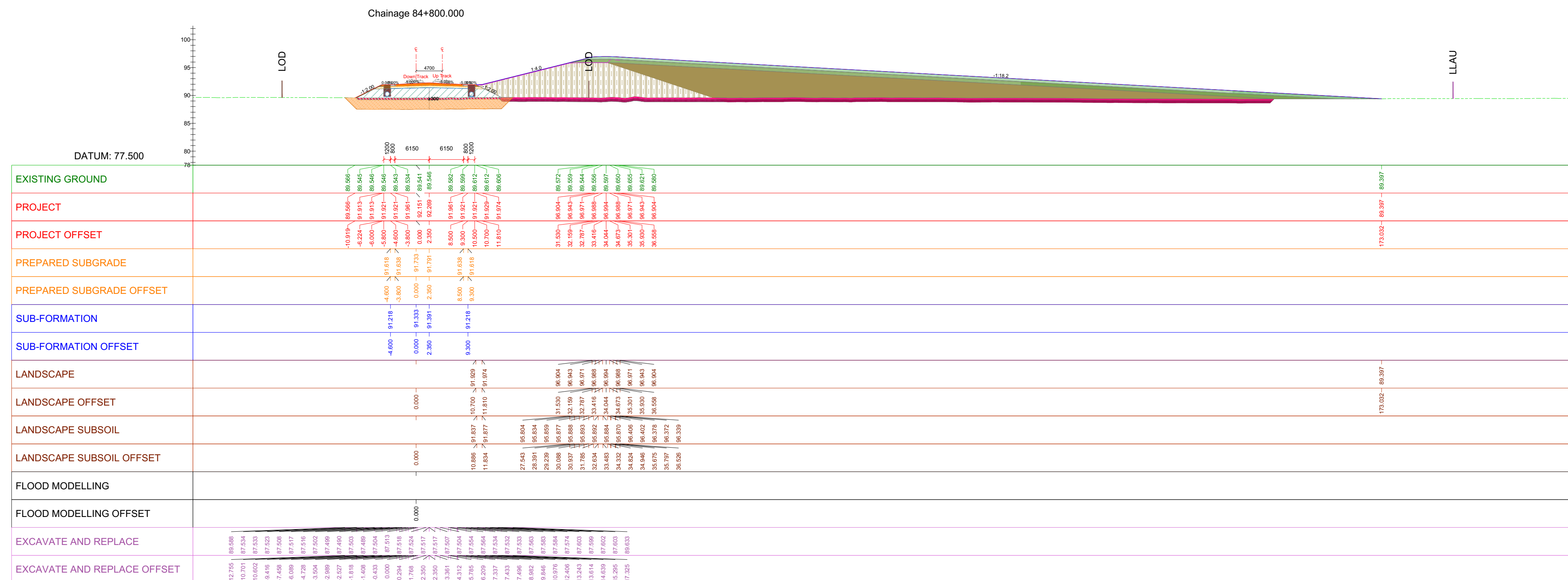
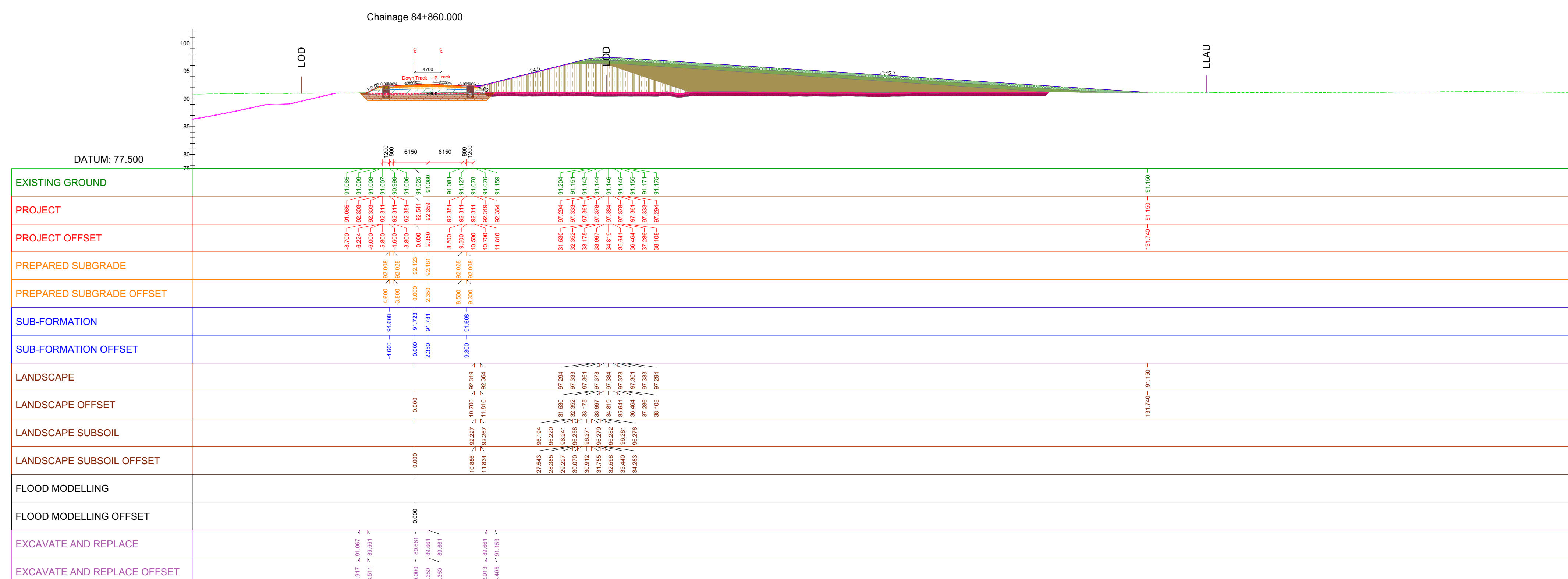
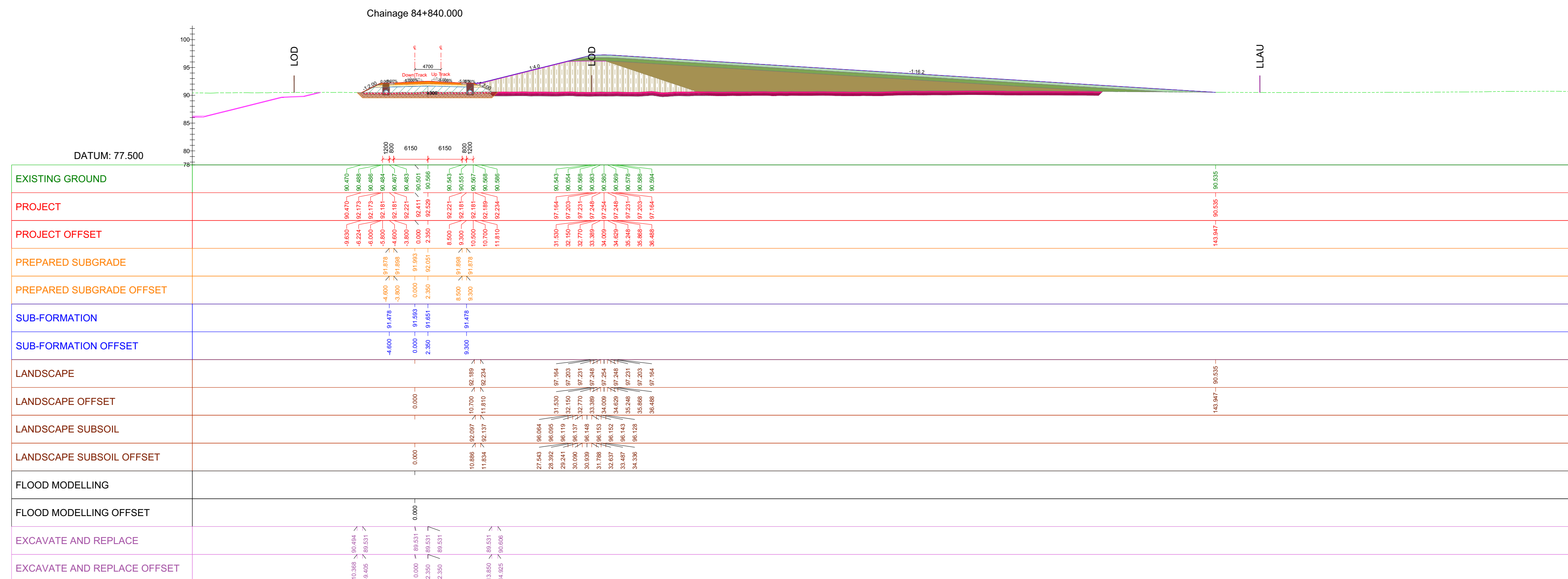


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FIG. 20







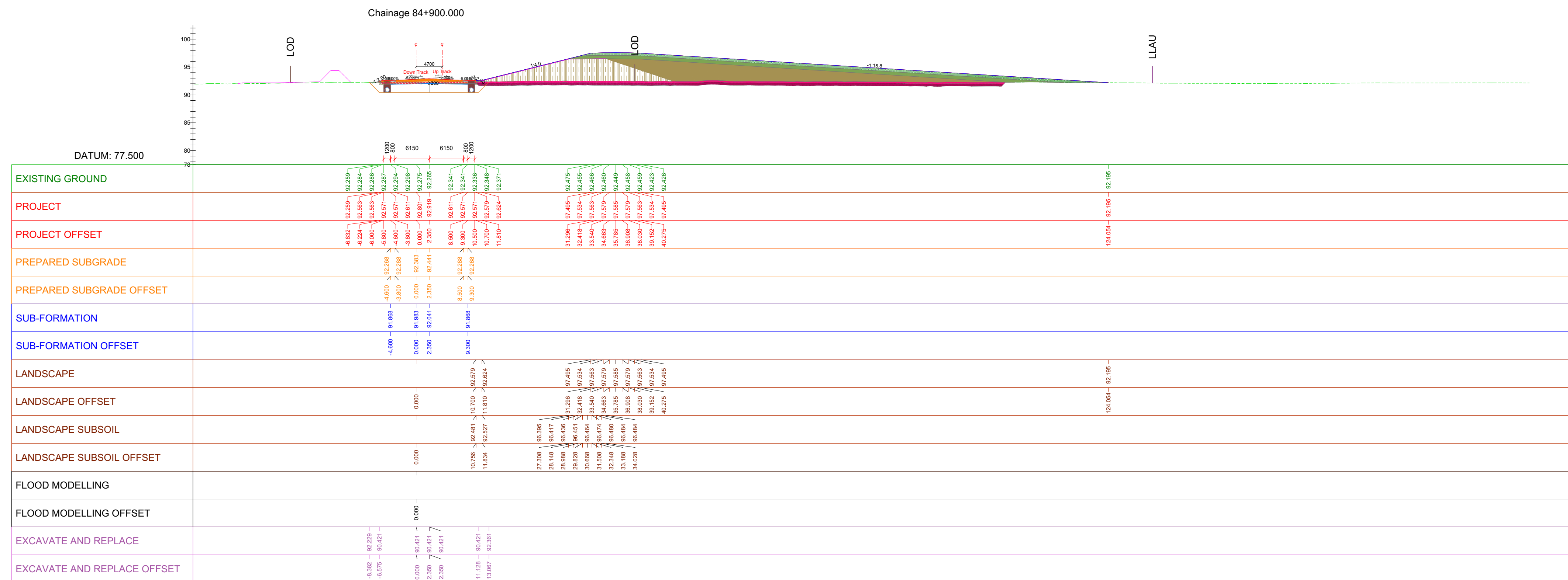


FIG. 24



Figure Number:

FIG. 25